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ABSTRACT

Factors important to faculty mobility decisions are identified based upon the concept of grants economics. This approach makes two assumptions: that a faculty member's market value can be determined and that it is independent of local labor market conditions. Several thousand faculty members in the social, biological, and physical sciences and engineering who had changed jobs since 1970 were surveyed in 1977 to identify the causes of immobility and those psychic benefits that were important in faculty moves. Geographical preferences appeared to be more important than salary in mobility decisions. In terms of actual job changes, there seemed to be some tradeoffs of salary for other desirable job traits. High levels of institutional prestige, opportunity for creativity and scholarly pursuits, and autonomy are characteristics for which faculty members will sacrifice income. They will require higher salaries if smaller amounts of these traits exist. In most cases, desirable jobs provide both high salaries and large amounts of nonmonetary benefits. (SW)

Grant Elements in Faculty Mobility: Some Initial Interpretations*

by

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What motivates faculty members to change jobs, and, specifically, what role do "grants" play in such decisions? These questions are the subject of this paper. A "grant" has been defined in the recent literature of grants economics as "a transfer which involves no recompense in economic goods" (Horvath, 1976). Thus, a faculty member would be making a grant to his employer if he accepted a job at a salary less than the value of his marginal product, that is, less than his market value. Likewise, a faculty member would be receiving a grant from his employer if he accepted a job at more than his market value. The assumption is that if a mobile faculty member is willing to accept a wage that is below his full market value, he is anticipating what grants economics calls "noneconomic or psychic returns" as compensation. (I must stress, however, that I and many other economists view psychic returns as economic goods.) Therefore, one question is, To what extent do faculty members trade salary for nonmonetary rewards when they change jobs? Additionally, are there imperfections in the market for faculty members that must be compensated for by grant elements in order to achieve desirable economic goals, such as employment? For example, when changing jobs, a faculty member might be forced to accept a salary lower than what he is worth because his value as a teacher is not known to his new employer.

Two critical assumptions are implicit in a casual application of this approach. First, one must assume that a faculty member's market value can be determined and, indeed, is independent of local labor market conditions. Whether the former is

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possible is an empirical question. But if one cannot find at least a reasonable surrogate for a faculty member's market value, then of course no measurement of grant elements would be possible. It is tempting to assert that prior salary reflects market value and therefore that a salary change accompanying a job change indicates a grant element. Some problems with this assertion are noted below.

The second part of the first assumption is not so readily acceptable. Clearly, in any sensible definition of market value, the value of a faculty member's services depends on the market in which he is competing. Because a professor moves from the University of South Dakota to Harvard University and accepts a lower salary at the latter does not necessarily mean he is making a grant to Harvard. Even if the demand for faculty members in a particular field were the same at the two universities, it should be clear that the prestige of Harvard and its location in the highly favorable academic environment of Boston would cause the supply of potential faculty members to be far greater at Harvard. Such supply-demand patterns would predict a lower salary at Harvard.

Thus salary changes which accompany job changes often reflect changing market conditions. If a shortage of faculty members existed, those willing to move might be offered higher salaries than what they received at their current institution. Even if the current institution were willing to match the offer made by the competing institution, those who moved would receive a higher salary than what they actually had been receiving. This higher salary would reflect scarcity rather than a real productivity change. And likewise, when there is an oversupply of faculty members, as at present, the lower salaries offered by new jobs reflect the surplus, not a difference in productivity. As long as this oversupply continues, more and more persons will accept new jobs at lower salaries. Since colleges cannot usually

reduce the salaries of their faculty members, they are likely to encourage mobility so that the new employer can pay a lower salary that reflects current market conditions.

Grants economists believe that exchange economics considers only the economic content of transactions and ignores the nonmonetary or psychic rewards of making a transaction. For instance, if one donates money to a charity, the feeling that he is helping others--a psychic reward--should be enough to compensate him. If a faculty member moves to a university that promises higher prestige, more comfortable facilities, and better students, such amenities should be sufficient to induce the faculty member to accept a lower salary. Grants economists would say that the decrease in salary is the dollar equivalent of the grant the faculty member makes.

This statement leads to the second assumption implicit in the use of grants economics to interpret faculty mobility: That all faculty jobs are economically the same. A faculty member who accepts a salary less than "the salary which should be paid for a faculty member" is thus making a grant. This concept is in direct opposition to Lancaster's "goods-characteristics" approach, which posits that a good is nothing more than a "bundle of characteristics" (Lancaster, 1966). The economic value of the good, according to Lancaster, inheres not in its generic classification, in this case the faculty position, but in its characteristics--teaching load, climate, quality of students, visibility for other jobs, and so on. These then determine the salary with which the faculty member must be remunerated in order for him to accept the position. In other words, a faculty member who changes jobs establishes his asking salary by evaluating these characteristics. His evaluation along with similar assessments by others competing in the same market and the demand pattern of the universities that offer these characteristics determine the actual salary for the job.

Thus, there would seem to be no grant element, as the term is traditionally understood, in faculty mobility. The questions we should be addressing, then, are the following: What characteristics of a faculty position are most likely to influence the supply of faculty members, and, by extension, their acceptance salaries, and what are the magnitudes of these effects? To what extent do salary changes that accompany job shifts indicate tradeoffs between the salaries and the psychic benefits of the two jobs, and to what extent do they indicate reassessements of the value of the marginal product of the faculty member, different market conditions, and market imperfections?

It is naive to assume that a higher salary accompanying a job change always means that the nonsalary attributes of the new job are less desirable than those of the present position. One part of any salary increase serves to cover the real costs of moving. A salary increase may well constitute a recognition of the increased economic value the employee has acquired through experience, publication, and so on.

Many faculty members may be considered immobile, in that they are willing to remain on a job even though they could get a somewhat higher salary elsewhere. These rigidities make it likely that the true economic worth of a faculty member whose productivity and economic value are increasing will be expressed in a salary change accompanying a job change rather than in a salary change at the same institution. His present employer is able to extract an "economic rent" from the immobile faculty member by paying him less than he could get elsewhere. Hence, if a faculty member's salary changes when he moves but there are no observable compensating changes in psychic returns, it is likely that the salary change reflects changes in his living costs or changes in his productivity.

It is easier to accept that a salary decline represents a trade for greater psychic benefits than that an increase is related to reduced benefits, since a

faculty member's productivity, in terms of research skills and publication, is unlikely to decline when he changes jobs. However, if productivity is defined to include good teaching skills on the previous job, it is possible that the rewards from these would not be obtained immediately on the new job because the teaching reputation may have to be established anew. That is, a lower salary might reflect lower perceived total productivity. If teaching skills go unrewarded because of a lack of information about prior teaching, this market imperfection might imply that a grant element exists.

Another reason why teaching might not be rewarded equally at all institutions is that teaching is valued differently at different types of colleges and universities. If one's economic worth varies with the employer, then different salaries paid to the same faculty member at two different institutions might be a response to his full economic value in each case. But to simplify the analysis below, I am assuming that a faculty member is equally valuable to all academic employers. That is, differences in the valuation of teaching and research across institutions are ignored.

Higher salaries may most often represent rewards for greater productivity in the case of young faculty members still at the stage of their careers where they are developing their skills. Accepting a lower salary is most likely to mean the giving of a grant in fields where productivity declines are less (the "soft" social sciences rather than the physical sciences and engineering, with biological and "hard" social sciences somewhere in between).

The Study

To identify the causes of immobility and those psychic benefits that were important in faculty moves, in 1977 I surveyed several thousand faculty members in the social, biological, and physical sciences and engineering

who had changed jobs since 1970.* They responded to questions concerning their current and previous job characteristics and other aspects of their lives.

The following examination of the results has two main parts. First, factors that respondents indicated would influence another job change are considered. Then, job characteristics actually traded for a higher or lower salary are examined, and differences by field are studied.

Factors in Mobility Decisions

Maybe the most striking result shown in Table 1 is the response to the

Insert Table 1 here

statement "I would move anywhere if the salary were attractive enough." That fewer than 10 percent are in strong agreement with this statement implies that other factors dominate the decision to move. If the more important factors are viewed by grants economists as psychic rather than economic, faculty mobility may encompass large grants, in their terminology. It is also noteworthy that economists are twice as likely as faculty members in most other fields to be motivated by salary considerations. Other social scientists and biologists are the least motivated by salary. And women are clearly less motivated by salary than are men.

The wording of the statement above might lend itself to several interpretations. It might be that some faculty members feel that the highest possible academic salary would be about $40,000, and in disagreeing with the statement they are saying $40,000 would not be enough to motivate them to move to an undesirable place. Others' agreement with the statement might imply that if they were paid $200,000 they would teach, for example, at City College of

*New entrants from graduate programs and those leaving academe to work elsewhere or to retire are excluded from the analysis.

Table 1

Percentage of Respondents Strongly Agreeing with Mobility Statements

	All Fields Male	All Fields Female	Biology	Chemistry	Physics	Mathematics	Civil Engineering	Electrical Engineering	Mechanical Engineering	Economics	Political Science	Anthropology	Psychology	Sociology
e anywhere if the e attractive enough	8.7	2.4	7.1	7.4	8.6	8.4	8.7	9.2	6.8	16.0	7.5	6.6	4.8	7.6
e anywhere for an satisfying job	26.5	24.0	27.5	34.9	31.5	31.9	20.2	20.3	17.2	19.5	28.9	32.5	19.9	27.2
e a job anywhere as ere are opportuni- avel	4.4	4.6	3.6	0.8	5.7	3.6	2.4	1.6	2.1	1.1	5.9	0.6	4.5	4.5
ooking for a job now, ob nationwide	41.7	29.9	41.9	50.5	51.0	44.0	33.4	32.2	33.4	40.7	40.2	42.4	31.5	45.9
limited number of which I would live	40.4	41.3	42.2	32.8	28.9	30.5	47.1	59.0	45.6	42.9	34.4	39.6	47.4	34.8
ld be a major fac- decision to move	20.4	16.1	20.0	14.3	11.4	15.2	25.3	20.7	23.2	16.9	21.5	16.7	23.5	23.5
e a job anywhere e period but I have references for residence	19.3	17.4	17.5	13.6	19.7	18.1	18.9	20.7	17.4	22.2	21.8	28.6	13.2	17.4
b location is with- es of the community ew up	8.9	12.0	11.2	4.2	5.7	11.0	6.2	9.2	11.6	9.5	10.7	10.0	10.2	8.2
ore mobile when my re out of school	15.6	11.7	15.0	10.1	10.0	10.2	16.3	17.9	16.0	16.4	14.1	11.5	18.4	25.2
is limited because are alive	1.9	4.5	2.0	1.7	1.1	0.4	1.0	0.0	2.1	2.2	4.7	3.3	2.9	2.6
on severely limits of geographic	9.2	6.4	13.6	8.4	17.9	7.9	2.3	7.3	14.0	5.4	9.4	7.1	5.6	7.0
is limited because s job	4.4	35.5	11.5	1.8	5.4	7.9	1.1	11.6	4.5	7.3	10.4	9.5	13.2	10.1
is limited because s educational plans	1.4	2.9	1.7	0.8	1.1	2.5	0.0	3.6	1.0	1.1	1.4	3.0	1.3	2.0
is limited because s preferences about	6.7	13.3	4.8	4.4	5.5	5.5	5.0	18.6	5.7	11.0	7.2	8.1	8.1	8.9

New York. In any case, except for economics, fewer than one in ten mobile faculty members would move again for an attractive salary alone.

Table 2 subdivides responses to the same questions in Table 1 according to

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Insert Table 2 here

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whether salary is above or below $17,000 (the median salary for these respondents). Overall, those with lower salaries are slightly more likely to move for money. However, in four fields, those with higher salaries are more willing to move for money. It could be that in certain fields, some are interested in money and want more, whereas others are content with relatively low-paying jobs. In other fields, those with less pay are more likely to want more--a diminishing marginal-utility-of-income patterns.

Although fewer than 10 percent would move anywhere if the salary were attractive enough, approximately 25 percent of the respondents said they would move anywhere for an extremely satisfying job (where satisfaction is not defined). Economists are among the least likely to agree with this statement--they seem to prefer money to other, nonmonetary, returns. In most fields, those with lower salaries are relatively more willing to move for an extremely satisfying job than for money (Table 2).

Geographic preferences clearly are a factor in mobility. Only 40 percent of the men and 30 percent of the women strongly agree that they would look nationwide if they were seeking a job now. Forty percent would live only in a limited number of cities. One in five feels climate is important. And 10 percent want to live within 500 miles of where they grew up. So, it seems clear that faculty would make monetary concessions in order to satisfy geographic preferences.

From Table 2 we can infer the relationship between geographical preferences and income. It seems that those with higher salaries are more likely to prefer

Table 2

Percentage of Respondents in Two Salary Categories Strongly Agreeing with Mobility Statements

	Salary Level[a]	Biology (N=252)	Civil Engineering (N=80)	Electrical Engineering (N=54)	Mechanical Engineering (N=88)	Chemistry (N=118)	Mathematics (N=217)	Physics (N=176)	Anthropology (N=220)	Economics (N=168)	Political Sciences (N=135)	Psychology (N=420)	Sociology (N=131)	All Fields
I would take a job anywhere as long as there were opportunities to travel	A	4	8	b	4	2	6	9	8	2	9	7	8	6
	B	4	2	0	2	0	0	3	10	1	3	4	2	2
If I were looking for a job now, I would look nationwide	A	42	39	b	25	55	45	51	46	31	38	30	44	42
	B	41	32	38	36	47	46	50	32	43	44	32	48	40
There are a limited number of cities in which I would live	A	41	29	b	48	28	27	30	38	27	28	40	28	33
	B	43	50	56	46	38	33	28	43	47	40	50	40	43
Climate would be a major factor in my decision to move	A	16	14	b	18	14	13	14	15	20	18	19	22	16
	B	24	27	20	25	15	17	9	21	17	25	25	25	21
I would take a job anywhere for a short period but I have specific preferences for permanent residence	A	18	14	b	26	12	18	12	27	12	24	11	19	17
	B	17	20	20	14	16	21	27	31	25	19	14	16	19
I would move anywhere if the salary were attractive enough	A	7	21	b	5	7	11	12	7	27	4	4	13	9
	B	7	6	9	8	9	4	6	7	12	11	5	3	7
I would move anywhere for and extremely satisfying job	A	28	36	b	22	33	37	35	33	37	30	22	30	31
	B	27	17	24	16	37	26	29	30	14	27	19	24	23
I will be more mobile when my children are out of school	A	10	25	b	18	6	4	8	10	15	18	13	21	10
	B	20	14	21	17	15	17	11	15	16	11	21	30	17
My mobility is limited because my parents are alive	A	3	0	b	4	0	1	0	4	5	6	4	5	2
	B	1	2	27	2	4	0	2	4	2	4	3	2	2
My ideal job location is within 500 miles of the community where I grew up	A	14	7	b	9	7	14	5	10	7	12	14	10	11
	B	8	6	11	13	2	5	6	10	11	10	9	6	8
My occupation severely limits my choice of geographic location	A	18	0	b	19	10	7	16	8	2	12	5	8	10
	B	8	3	9	13	7	11	19	5	6	7	6	6	9
My mobility is limited because of spouse's job	A	15	8	b	9	2	8	6	11	8	13	18	8	9
	B	8	0	13	2	2	5	5	7	8	9	11	12	6
My mobility is limited because of spouse's educational plans	A	3	0	b	0	2	3	1	4	0	2	0	3	2
	B	1	0	4	0	0	1	1	2	2	2	2	2	1
My mobility is limited because of spouse's preferences about locale	A	5	0	b	9	2	4	3	11	3	6	10	8	5
	B	6	6	21	6	7	7	8	3	14	9	7	9	9

[a] A: salary < $17,000; B: salary ≥ $17,000

b: less than 10 observations

a limited number of cities and give slightly higher weight to climate. It is probably easier to trade off salary for these things if the salary is already quite high.

Table 1 also provides some evidence about the extent of the faculty respondents' immobility due to family obligations. It is clear that women, because of obligations to parents, spouse's job, spouse's educational plans, and spouse's preferences, are more immobile than men. This implies that a market imperfection exists which could lead to lower salaries for (or larger grants from) women faculty members as they resist job change for family reasons. Interestingly, more men than women attribute immobility to their children's being in school; in our sample women have only half as many children as men.

It is apparent from Table 1 that for both men and women across fields, geographic preferences are more important factors in mobility decisions than are restrictions due to family responsibilities. From a grants economics perspective, faculty members would be more likely to take lower than full-value salaries for reasons of geographic preference than for reasons of immobility due to family obligations. When faculty members move to jobs with lower salaries, the decisions seem to be based on anticipated positive nonmonetary gains rather than on problems of immobility.

Whether or not those employed at institutions of different quality* differ in their willingness to trade off institutional quality for income or psychic returns from their jobs was also considered.** For the total sample, the quality of the employing institution does not appear to be a significant

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*Employing universities were grouped in three quality categories on the basis of the average SAT scores of their entering freshmen (Astin and Henson, 1977).

**Tables for this analysis are not included but can be provided by the author.

variable in the willingness of faculty members to move anywhere if the salary were high enough. Those in middle-level institutions are most likely to move for high salary (in five of 12 fields). Institutional quality also does not seem to be a strong factor in willingness to move for an extremely satisfying job. However, faculty members in departments of electrical engineering, chemistry, and anthropology in the best institutions are more likely to be so willing than are their colleagues in less selective (lower quality) institutions.

Those in the best institutions' departments usually are also more willing than others to look nationwide for jobs but are no more likely to restrict their job choices to a limited number of cities. Those in the best institutions give less weight to climate than do those from lower-rated employers. Hence it appears that those faculty members who end up in the best colleges and universities are most likely to be geographically mobile--or least likely to let geographic preferences influence job selection. The better the respondent's institution, the more likely it is that the respondent has moved more than 500 miles from where he or she grew up. It also appears that those in the best departments are no more limited by family constraints than are others.

Moreover those in the best institutions do not appear to be more influenced than others by high salaries or by prospects of satisfying jobs. It is probably true, however, that those faculty members have already achieved high salaries and satisfaction. One way they have done this is by being less concerned with climate and related geographic preferences. A tradeoff between a nice place to live and a high-quality department seems apparent.

Stepwise multiple regressions were run to summarize and clarify some of the results presented so far.* In particular, factors associated with a

*Regression tables are not included but can be provided by the author.

willingness to move anywhere if the salary were attractive enough or the job extremely satisfying were sought. Each of these dependent variables could take a value from 4 (strongly agree) to 1 (strongly disagree). The independent variables include age, sex, current salary, overall job satisfaction, selectivity of current employer, years employed on current job, whether or not one was currently doing research, and a set of dichotomous variables indicating field of Ph.D. This set of factors accounted for a very small amount of the variation in the responses to the mobility questions--under 4 percent in each case. And relatively few factors even entered the regressions: A 3.5 F-value was required for entry.

In the salary-mobility regression, only three variables entered. Women were significantly less likely than men to indicate a willingness to move anywhere if the salary were attractive enough. And the higher the current salary or current job satisfaction was, the less likely a faculty member was to move for a high salary. The selectivity of the current employer was not a significant factor; neither were the respondent's field, current involvement in research, age, or years on the job. Merely being at a high-quality institution did not make individuals with equal salary or job satisfaction more or less likely to be moved by salary. A tradeoff between prestige of employer and money (which might have been inferred by a significant negative coefficient on selectivity) is not evident. The simple correlation between selectivity of employing institution and current salary is only .11. However, this correlation does indicate a slight tendency for those at better instituions to be paid more. But again, this finding does not indicate a "salary for prestige" tradeoff.

The same three factors were significant in explaining willingness to move for an extremely satisfying job: Women, the higher paid, and the more satisfied

were less willing to move. Additionally, older faculty members were less willing to move. Field differences were significant here: Psychologists, mechanical engineers, and economists were among the least willing to move for an extremely satisfying job, whereas chemists were potentially the most mobile for this reason. The fact that the selectivity of the employing institution did not enter the regression, indicated again that high-quality institutions do not have any special hold on their faculty members.

It is interesting to note that the highest F-ratio for variables not entering the salary-mobility regressions was for the field of economics, and the beta coefficient on that variable showed that economists were most likely to move for high salaries. Yet economists were among the least likely to move for an extremely satisfying job. Satisfaction probably was defined by economists as independent of salary, since their willingness to move for the former is so much lower than for the latter. Psychologists are least mobile for either salary or satisfaction, perhaps because many have consulting or clinical responsibilities specific to their current locations.

Job Satisfaction of Faculty Members

It is immediately evident from Table 3 that those in the highest-quality

Insert Table 3 here

institutions were usually the most satisfied. In some fields there was greater satisfaction at the lowest-quality institutions than at the medium-quality ones. In civil engineering, economics, political science, and sociology, faculty members in the lowest-quality colleges and universities were most frequently very satisfied with their jobs overall. In electrical and mechanical engineering,

Table 3

Percentage of Respondents Very Satisfied with Job Characteristics in Institutions of Differing Quality

	Institution Quality[a]	Biology (N=229)	Civil Engineering (N=77)	Electrical Engineering (N=48)	Mechanical Engineering (N=86)	Chemistry (N=127)	Mathematics (N=217)	Physics (N=170)	Anthropology (N=273)	Economics (N=178)	Science (N=130)	Psychology (N=336	Sociology (N=130)	All Fields
Overall job satisfaction	A	34	73	27	31	5	18	21	21	42	58	29	47	29.4
	B	46	30	22	23	35	31	34	26	38	26	35	27	32.2
	C	39	52	42	41	42	45	35	33	38	43	36	30	40.1
All departments		40	48	31	34	33	34	33	27	38	39	34	31	
Salary and fringe benefits	A	9	9	18	0	5	13	13	11	17	21	17	35	12.2
	B	15	3	0	4	10	19	16	11	25	12	10	8	11.8
	C	10	14	21	14	13	10	16	9	19	8	16	14	13.1
Opportunity for scholarly pursuits	A	20	36	27	19	25	6	17	18	29	33	22	21	19.9
	B	35	25	17	19	31	23	30	20	26	30	25	19	25.9
	C	22	47	58	42	40	40	40	22	34	40	39	39	38.2
Opportunity for creativity	A	27	20	18	29	24	17	22	23	46	33	31	40	25.5
	B	46	19	24	28	45	31	37	25	32	28	33	29	32.6
	C	37	40	63	49	49	52	40	36	38	52	38	50	44.9
Opportunity to use training or schooling	A	42	36	50	38	48	25	36	34	64	61	31	60	39.2
	B	58	35	28	44	52	34	37	32	49	42	46	33	41.9
	C	49	62	65	55	55	57	55	54	44	48	48	51	53.2
Resources to get job done	A	16	9	9	19	5	8	13	5	22	17	9	15	11.4
	B	21	3	11	4	10	22	13	15	24	13	13	20	13.9
	C	15	30	16	18	22	32	26	14	34	23	26	25	23.6
Teaching load	A	13	9	9	7	0	16	9	7	17	21	10	15	11.4
	B	24	14	11	8	20	20	15	14	21	26	29	10	19.1
	C	14	23	41	30	17	27	27	21	20	35	31	32	25.1
Quality of students	A	8	0	9	7	0	2	4	6	4	13	6	0	4.8
	B	6	5	11	8	4	5	10	8	12	4	13	5	7.4
	C	17	23	32	21	14	21	20	20	25	14	29	22	20.7
Pressure to publish	A	21	40	10	13	20	17	13	15	24	26	27	47	20.5
	B	9	3	17	12	18	20	18	16	18	26	18	16	15.9
	C	19	14	21	7	25	22	13	15	14	18	23	19	17.2
Internal politics	A	7	10	9	0	0	9	0	5	8	26	10	15	7.9
	B	20	6	17	0	20	10	9	15	21	14	6	12	12.1
	C	14	14	6	7	9	19	7	12	20	14	8	14	12.5
Working conditions (hours, location)	A	39	55	10	25	10	20	21	23	38	25	29	40	26.2
	B	42	36	22	19	31	29	37	25	31	33	36	22	29.9
	C	32	47	47	36	38	38	43	37	41	43	38	45	40.3

[a] A=low quality; B=medium quality; C=high quality

Table 3 Cont'd.

	Institution Quality[a]	Biology (N=229)	Civil Engineering (N=77)	Electrical Engineering (N=48)	Mechanical Engineering (N=86)	Chemistry (N=127)	Mathematics (N=217)	Physics (N=170)	Anthropology (N=273)	Economics (N=178)	Science (N=130)	Psychology (N=335)	Sociology (N=130)	All Fields
Status	A	29	20	36	25	19	13	9	17	29	25	33	35	22.6
	B	31	11	6	12	26	14	20	16	41	19	32	22	21.3
	C	21	35	42	19	29	33	21	20	29	35	34	29	28.1
Autonomy and independence	A	30	55	36	50	24	22	29	32	48	46	46	45	35.4
	B	52	16	39	15	51	28	43	33	41	39	48	33	37.5
	C	55	47	68	48	42	52	42	51	69	57	50	51	50.2
Variety in activities	A	27	27	36	13	24	15	17	22	48	35	31	42	24.9
	B	44	22	22	16	31	22	25	26	36	30	43	34	30.0
	C	37	33	61	39	39	36	36	32	40	52	47	41	39.6
Policy-making power	A	11	30	36	0	10	6	4	11	0	21	10	26	11.5
	B	19	6	11	8	12	14	14	10	23	13	18	14	13.8
	C	16	11	21	25	13	21	7	10	28	14	17	13	16.9
Congenial work relationships	A	27	55	27	38	43	40	29	27	35	63	40	56	38.5
	B	39	14	22	20	31	38	31	34	38	38	35	26	31.5
	C	41	27	37	34	44	45	34	34	45	27	34	25	37.4
Competency of colleagues	A	22	18	27	19	24	6	29	16	26	33	18	32	19.4
	B	33	19	11	16	20	25	32	26	28	22	23	10	23.5
	C	24	53	42	28	32	43	34	27	36	27	28	27	33.8
Opportunities for different (better) jobs at this institution/ organization	A	18	0	10	8	5	9	0	7	14	23	8	17	9.4
	B	12	12	6	5	18	11	7	13	16	11	11	10	11.2
	C	12	12	41	16	18	15	12	9	18	15	10	22	15.5
Visibility for jobs at other institutions/ organizations	A	16	*	0	20	0	8	5	6	13	21	3	12	8.8
	B	9	11	6	13	18	11	3	7	26	10	16	17	12.3
	C	13	31	42	23	23	20	23	16	25	12	21	22	21.9
Challenge	A	36	36	27	20	10	24	29	27	44	48	24	40	28.4
	B	37	24	22	23	33	25	38	21	32	31	33	28	29.7
	C	38	50	53	55	49	39	38	28	39	40	43	35	42.4
Job security	A	21	9	36	14	24	17	17	16	36	21	28	15	20.9
	B	21	5	24	16	12	21	15	14	33	23	28	20	18.8
	C	17	28	47	16	27	23	25	26	32	20	28	29	25.2
Prestige of employer	A	7	0	9	13	5	4	13	4	17	21	15	15	9.2
	B	15	8	11	15	6	13	12	12	19	10	16	16	12.3
	C	24	43	58	39	27	31	35	28	31	27	31	27	32.5

[a] A=low quality; B=medium quality; C=high quality

chemistry, mathematics, physics, anthropology, and psychology, those in the best institutions were most frequently very satisfied. For all departments, there was not much variation in overall job satisfaction. The most satisfied were professors of anthropology.

The survey asked about satisfaction with twenty-one job characteristics. For 15 of these, faculty members in the most selective institutions were most likely to indicate that they were very satisfied. As might be expected, more of those in the least selective schools were very satisfied with the degree of pressure to publish, since less research is demanded by their departments. The least variation across institutions of different quality was found for satisfaction with internal politics, policy-making power, congeniality of colleagues, opportunity for different (better) jobs at one's own institution, and salary and fringe benefits.

It seems clear that those in the most selective institutions were not trading other desirable job traits for institutional prestige. Nor did those in less selective schools feel more satisfied than others with many aspects of their jobs. And indeed contentment with salary does not vary with institutional selectivity. It does not appear that those in high-quality colleges were more likely to forgo salary for other aspects of their jobs. Thus, in grants economics terminology, grants were not being made by those at high-quality institutions in exchange for nonpecuniary job benefits. Faculty members at highly selective institutions were about as satisfied with their salaries as were other faculty members, but were more satisfied with most other aspects of their jobs.

Actual Changes in Income and Job Satisfaction

Since all faculty members in the sample had changed jobs fairly recently, it was possible to compare changes in salary with changes in job satisfaction.* When salary and satisfaction moved in opposite directions, either the faculty members had taken a lower salary than before in exchange for more of a desirable job trait or the employer had to pay a higher salary to compensate for the fact that the new job had less of certain desirable characteristics. However, Table 4 shows that a relatively small proportion of job changers made tradeoffs

Insert Table 4 here

between salary and job satisfaction; that is, most people who changed jobs either improved their salaries as well as other aspects of job satisfaction, accepted jobs inferior in both monetary and nonmonetary terms, or did not experience any change.

In each major-field/job-trait cell of Table 4, there are two percentages. The first is the share of all respondents in that field whose job change resulted in a lower salary but greater satisfaction with that particular aspect of their jobs. The second figure is the share of faculty members whose salary rose while satisfaction declined. Grants economists might infer that the first number in each cell is the proportion of people who made grants when changing jobs and that the second is the proportion of faculty members who received grants. As noted earlier, whether these figures represent grants or traditional economic market responses is a semantic issue. In any case, it appears that some sort

*There were four choices regarding satisfaction with the current job and the previous job: very satisfied, satisfied, marginally satisfied, not satisfied. Clearly, if the previous job was "marginally" and the current job "very," an increase in satisfaction was indicated. Three categories were developed: increased, remained the same, and decreased. However, when no increase was possible because an individual was very satisfied on both jobs, this was considered equivalent to an increase. That is, the "increased" category includes both increasers and those who had no potential for increase; the same goes for the "decreased" category.

Table 4

Percentage of Respondents with Increased Salaries/Decreased Satisfaction and with Decreased/Increased Satisfaction

	Total		Biology (N=153)		Civil Engineering (N=67)		Electrical Engineering (N=43)		Mechanical Engineering (N=74)		Chemistry (N=77)		Mathematics (N=169)		Physics (N=166)		Anthropology (N=130)		Economics (N=124)		Political Science (N=99)		Psychology (N=318)		Sociology (N=103)	
	Sat+ Sal-	Sat- Sal+	Sat+ Sal-	Sat- Sal+	Sat+ Sal-	Sat- Sal+	Sat+ Sal-	Sat- Sal+	Sat+ Sal-	Sat- Sal+	Sat+ Sal-	Sat- Sal+	Sat+ Sal-	Sat- Sal+	Sat+ Sal-	Sat- Sal+	Sat+ Sal-	Sat- Sal+	Sat+ Sal-	Sat- Sal+	Sat+ Sal-	Sat- Sal+	Sat+ Sal-	Sat- Sal+	Sat+ Sal-	Sa
Overall job satisfaction	16	7	14	8	19	3	19	5	14	5	22	4	10	9	17	10	12	11	19	4	15	8	17	8	14	4
Opportunity for scholarly pursuits	15	12	8	12	24	2	26	5	16	13	22	8	8	18	13	18	10	10	17	14	15	9	18	14	11	14
Opportunity for creativity	17	10	13	14	25	3	21	10	16	10	24	12	11	12	14	14	10	11	18	6	15	10	18	11	13	6
Opportunity to use training or schooling	17	6	14	8	24	2	18	3	19	4	23	10	10	9	17	6	14	11	16	3	18	7	20	5	12	6
Resources to get job done	7	16	9	22	10	8	2	12	5	22	4	12	7	16	4	21	9	24	14	12	6	11	9	17	7	17
Teaching load	7	17	12	17	14	14	5	14	2	16	7	17	3	21	7	17	2	27	7	17	9	9	7	14	8	24
Quality of students	6	23	11	19	10	15	9	17	2	30	2	23	8	27	4	26	6	19	7	19	2	21	7	21	6	30
Pressure to publish	9	9	9	7	4	11	6	6	6	12	11	11	9	11	9	9	6	7	9	6	9	4	11	6	10	10
Internal politics	13	16	15	17	17	10	10	25	11	18	17	14	9	16	10	17	12	25	15	10	14	14	15	20	12	15
Working conditions (hours, location)	13	10	14	5	20	9	12	7	10	7	14	10	8	15	14	9	10	9	16	14	13	9	16	9	9	9
Status	12	8	12	9	13	2	19	2	9	9	15	8	7	10	9	12	9	14	12	6	9	9	17	9	11	8
Autonomy and independence	17	6	16	7	22	2	26	2	14	6	23	4	10	8	18	10	14	9	18	4	13	6	19	7	13	7
Variety in activities	14	6	12	6	17	3	26	2	11	11	17	4	9	8	13	9	12	10	17	4	18	6	18	5	10	9
Policy-making power	13	11	11	13	10	8	20	5	19	14	14	8	7	11	16	12	7	22	14	11	8	9	14	11	9	9
Congenial work relationships	13	9	14	8	15	8	14	14	9	11	18	7	10	8	14	9	10	13	15	6	13	10	16	11	12	13
Competence of colleagues	12	12	14	18	20	5	17	7	13	14	12	7	7	14	10	16	13	17	14	6	11	12	14	11	11	11
Opportunities for different (better) jobs at this institution/organization	12	13	13	15	17	5	14	8	13	15	16	14	7	14	11	18	8	27	14	5	9	9	13	15	12	13
Visibility for jobs in other institutions/ organizations	10	16	8	16	12	7	26	10	13	14	8	8	6	20	7	23	5	15	11	12	8	19	12	20	5	1
Challenge	15	7	13	8	22	3	21	7	17	4	16	3	11	7	14	11	11	11	17	3	13	8	16	9	8	
Job security	12	13	10	13	14	14	11	5	13	19	14	11	8	14	14	15	7	21	13	10	12	14	15	10	10	1
Prestige of employer	11	18	12	24	16	9	12	15	7	22	8	12	9	22	9	20	9	19	14	20	8	17	14	16	6	2

of tradeoff between salary and overall job satisfaction was evidenced by 23 percent of all mobile faculty members in the sample.

For all fields combined, it appears that salary was most frequently traded for more opportunities for creativity and use of training, more autonomy and independence, and more challenge. The job trait traded off least frequently for lower salary was quality of students. When receiving higher salaries on their new jobs, the respondents most often gave up some satisfaction with the resources to get the job done, teaching load, quality of students, internal politics, outside visibility, and prestige of employer. Yet, in all these cases, a relatively small proportion of the sample experienced tradeoffs. Indeed, below, Table 5 reveals that for the sample as a whole there was a significant positive relationship between salary change and change in satisfaction with resources to get the job done. This is consistent with the Table 4 result that only 23 percent experienced a tradeoff between salary and satisfaction with this aspect of their jobs.

There was most trading between salary and overall job satisfaction among faculty members in the fields of physics, chemistry, and psychology. The fields in which faculty were most likely to trade salary for overall job satisfaction were chemistry, economics, and engineering. Anthropology, mathematics, and physics people were most likely to give up overall job satisfaction for higher salaries.

Table 4 enables detailed examination of the most frequent tradeoffs in specific fields. In biology, faculty members most frequently traded prestige of employer for higher salaries. Chemists and civil engineers most often gave up salary for creative opportunities. Mathematics faculty members required higher salaries when student quality was inferior. The reader can take note of the frequency of other tradeoffs of interest.

In summary, it appears that some faculty members did trade salary for jobs with better opportunities for intellectual and creative development whereas they demanded more salary if required to forego benefits generally associated with more

prestigious institutions (visibility, good students). These findings imply that faculty members who move to lower-quality, less research-intensive institutions might require higher pay. These institutions have to pay higher salaries to persuade faculty members to accept less of these desirable traits in their jobs. However, there are only a small number of job traits for which income was traded; and less than one quarter of the mobile faculty members indicated their last job change had involved any salary tradeoff with job satisfaction in either direction. Although one quarter of the respondents said they would move anywhere for an extremely satisfying job, very few (16 percent) actually had accepted lower salaries for jobs with certain potentially satisfying attributes. If the same credence is given to the responses to the hypothetical mobility questions discussed earlier and to the evidence on changes in satisfaction which resulted from the last job change, it seems that locational factors are more important than job traits.

Multivariable Analysis

Multiple regressions were run to find correlates with the percentage change in salary between the previous and current job and with current salary level. Table 5 provides simple correlations and beta coefficients for factors thought to be asso-

Insert Table 5 here

ciated with salary level and salary change. Most interesting of the independent variables are those which show how various aspects of job satisfaction changed as income changed, when other job traits and certain background factors were controlled. Indicators of a change in satisfaction with 16 job characteristics could have entered the regression if any indicator had had a statistically significant relationship with the dependent variable.* However, only five of these indicators of

*In addition to the five aspects listed under "Changes in Satisfaction" in Table 5, the following factors could have entered if their F-ratio was equal to or greater than 3.5: Opportunity for scholarly pursuits, Opportunity to use training or schooling, Internal politics, Working conditions, Status, Autonomy and independence, Congenial work relationships, Competence of colleagues, Visibility for jobs in other institutions/organizations, Challenge, and Prestige of employer.

Table 5

Regressions on Percentage Change in Salary and on Salary Level

	Percentage Change in Salary		Actual Salary	
	Simple Correlation	β	Simple Correlation	β
Background				
Sex	.010	.020[a]	-.166	-.097
Selectivity (graduate school)	.033	.004[a]	.108	.022[a]
Engineering field	-.031	-.052[a]	.119	.148
Social science field	.035	-.035[a]	.075	.062
Years since Ph.D.	-.012	-.252	.660	.544
Job history				
Salary	.167	.259	[b]	
Other income difference (percentages)	.350	.317	.091	.087
Could have stayed (last job)	-.057	-.133	.243	.138
Last position tenured	.119	.137	.492	.144
Satisfied with career progress to date			.303	.248
Changes in job perception				
Satisfied with career progress to date	.121	.118	.185	-.110
My job fits my long-range goals	-.048	-.118	.072	-.077
Glad I had the graduate education I did	-.043	-.066		
Changes in satisfaction with				
Opportunity for creativity	-.036	-.093		
Resources to get job done	.124	.071		
Variety in activities			.123	.055
Policy-making power	.100	.087		
Job security			.140	.065
Job believed to be nontraditional			.140	.065
R^2		.225		.587
N		726		726

Note: Variables which might have entered the regression equation but did not: (1) agreement with the following perceptions of the current job: my job offers good future prospects for further advancement, my job fits my long-range goals, my skills are fully utilized in my job, I received job training inappropriate for the actual requirements of my job, I am glad I had the graduate education I did; (2) changes between previous and current jobs in the following perceptions: opportunity for scholarly pursuits, opportunity to use my training or schooling, internal politics, working conditions (hours, location), status, autonomy and independence, congenial work relationships, competence of colleagues, visibility for jobs at other institutions/organizations, challenge, prestige of employer.

[a] significant at .05 level

[b] allowed to enter equation

satisfaction did enter the regressions, and in four of these cases the coefficients had positive signs.

Salary changes were positively correlated with changes in satisfaction with resources to get the job done and with policy-making power. Apparently a salary increase is accompanied by more other resources and by greater power. There also were positive correlations between salary level and changes in satisfaction with job security. Clearly, the more highly paid professors probably have tenure, can teach a more varied set of courses, and get involved in other activities around the university.

In only one case was a tradeoff revealed. There was a negative coefficient on the change in satisfaction with opportunities for creativity in the salary-change regression. This negative coefficient confirms a tradeoff demonstrated by earlier tests: Larger salary increases are significantly associated with less satisfaction with opportunities for creativity. Faculty members require higher salaries to have jobs with less creativity or would take less salary if more creativity were available on the new job.

These findings hold true after controlling for broad field groups, sex aspects of job history, current job situation, and perceptions of current and prior job. In the final step of the regression, no field or background variables were significantly related to salary change, although the number of years since the Ph.D. was negatively related. Probably younger faculty members with lower salaries and increasing productivity, get higher percentage raises. Most of the job-history and current-job indicators had the expected effects, Interestingly, those obtaining larger salary increases were likely to feel their new jobs were less in line with their long-range goals than were those receiving smaller salary increases. Perhaps salary had to compensate for jobs with low long-run potential.

A fairly high proportion of individual differences in salary level is explained by the variables in the second regression. All the background variables are as predicted in a standard human-capital model (Solmon, 1975): Women earn less; older faculty members earn more; engineering and social science faculty members earn more than their hard science colleagues. However, the selectivity of the graduate school does not affect earnings, as it has in other studies. It might be that for faculty members the quality of the graduate school affects the quality of the employer but not necessarily salary. It is also interesting that those who teach but regard their jobs as nontraditional tend to earn more. This finding may mean that faculty members in professional schools get higher salaries.

Conclusion

This study has been able to identify factors said to be important in mobility decisions. Surprisingly, neither potential salary increases nor immobility for family reasons is important. Geographical preferences appear to be important, more important than salary to many faculty members.

In terms of actual job changes, there seems to be some tradeoffs of salary for other desirable job traits. High levels of institutional prestige, opportunity for creativity and scholarly pursuits, and autonomy are characteristics for which faculty members will sacrifice income. They will require higher salaries if smaller amounts of these traits exist. Clearly, faculty members are not motivated exclusively by money. Yet in most cases, desirable jobs provide both high salaries and large amounts of nonmonetary benefits. Whether the psychic returns which these nonsalary job benefits provide are an economic quid quo pro or are reasons for grants to and by faculty members is a definitional matter.

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